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## Educational News and Editorial Comment

### CREDIT FOR QUALITY

From time to time the *School Review* has published discussions of administrative systems which aim to recognize quality of work and to give more substantial returns to students who make high grades.

The following is a statement issued by the high school of Marcus, Iowa:

A semester grade of 75 per cent in any subject gives the pupil 1 credit.

A semester grade of 85 per cent in any subject gives the pupil 1 1/8 credits.

A semester grade of 95 per cent in any subject gives the pupil 1 1/4 credits.

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A semester grade of 65 per cent in any subject gives the pupil  $\frac{1}{2}$  credit.

These credits and fractional credits all count in summing up the 32 credits required for graduation.

If a pupil desires he may graduate with more than thirty-two credits. In his diploma there will then be made mention of this fact in a statement showing the number of credits he has received in excess of the 32 required.

Work of great thoroughness and regularity such as would be considered excellent or superior deserves a 95 per cent rating. This should be such work as bright industrious pupils *are able* to do.

Strong, thorough, regular work which can almost be called excellent deserves a rating of 85 per cent.

Good work having some lack of exactness or regularity but showing a good understanding of the subject deserves a rating of 75 per cent.

Work which could not be called good but which is done with sufficient interest and regularity to be of real value to the pupil deserves a rating of 65 per cent.

Work done at a lower standard than 65 per cent is considered of no real value to the pupil and receives no credit.

Work worthy of credit is given one of the four marks: 65 per cent, 75 per cent, 85 per cent, or 95 per cent. These marks are used with their ordinary values. No intervening grades are used except in final averages.

This credit system recognizes the educative value of thorough work and places a premium upon it. It permits pupils to complete the high-school course in a length of time greater or less than the standard four years.

The superintendent of schools, E. T. Sheppard, writes:

We have entered upon the third year in the use of this system. The practical results and the general satisfaction are beyond our expectation. This is naturally the case when we do a sensible thing in a business-like way. I believe that the fractions of excess credit granted for the higher grade of work are not too great as we have it in our system. In fact, the increased value that comes to the pupil as a result of increased thoroughness, I believe, is far greater than these fractions represent.

There are, of course, grave problems arising in the administration of this kind of a system. The marks of teachers in different departments must be standardized so that excess credits will be equitably distributed. The amount of work required in courses must be equated so that excess credits and penalties will be alike in all parts of the elective system.

Penalty grades must be in proper proportions to excess grades, otherwise the curve of marks will be skewed in an unfair way. In short, the credit-for-quality plan, if administered in what is described in the above quotation as a business-like way, can be made to stimulate the thinking of the whole school about the content and administration of the entire curriculum.

#### NEW YORK CITY SCHOOL FINANCES

The school situation in New York City continues to present a spectacle of inadequate financial support and political maneuvering for control of such funds as are at hand. The Public Education Association of that city has issued several bulletins dealing with the financial problems that now confront the city system. The following statement from one of the bulletins summarizes one aspect of the present situation:

Why is it next to impossible for interested citizens and tax payers to get access to the details of the \$87,000,000 school budget this year?

Heretofore, copies of the tentative budget in extended detail have been printed in pamphlet form and released to the public during the *early part of September*, and everyone who cared to has had ample time to study the items in advance of the public hearings before the Board of Estimate and Apportionment in October.

It is now almost October, and the only way interested citizens can get at the facts behind the more or less startling and confusing totals that have been published in the daily press is to pore over the rare copy of an unwieldy mass of blurred manuscript at the office of the Board of Education.

Such inaccessibility to the facts is bound to cause unfortunate doubts in the public mind regarding the character of the budget, particularly when it has been preceded by such other disquieting factors as the final cutting of the budget by the Board of Education behind closed doors, the general realization of the fact that the budget does not appear nearly as generous upon study as a first glance at the total would lead one to believe, and the disillusionment of the public regarding the Mayor's contention that he has provided some \$10,000,000 for new school buildings during the past year, when, as a matter of fact, he has not provided a red cent, as that sum was but a part of the balance for that purpose that existed at the close of the Mitchel administration.

Nothing will clear away such doubts and win the united support of public-spirited citizens to the task of securing adequate school funds more than the freest opportunity to obtain full enlightenment regarding the facts.

The public is jealous of its rights in this matter and any abridgment of them is likely to result disastrously.

Several pages following this are devoted to statements of indefensible reductions that will have to be made in school work. For example, school gardening will have to be given up, and the Americanization program for the city will have to be very much reduced.

The association then presents two resolutions which it has attempted to have acted upon by all of the leading organizations in New York City. These resolutions are as follows:

1. In view of the fact that the budget estimate this year is some \$44,000,000 greater than the \$43,000,000 guaranteed to the schools under the 4.9 mills provision of the law, the representatives of the organization present are requested to secure the action of their several organizations upon the following general principle: That in passing upon the final appropriation for the schools the jurisdiction of funds for all educational purposes be retained by the school authorities with whom the responsibility is legally placed for determining and carrying out educational policies.

2. In view of the fact that there is now pending before the State Department of Education an appeal from the City Superintendent asking for a judicial interpretation of certain sections of the by-laws of the Board of Education, which, it is claimed, divide administrative responsibility for purely educational matters between the City Superintendent and the Board of Education, the representatives of the organizations present are requested to secure the action of their several organizations upon the following general principle: That responsibility for the administration of all educational matters under the Board of Education be centered in one person—the duly appointed chief executive under the law, and expert administrator of the system, the City Superintendent—and that the Board of Education *as a body*, and not through any one of its individual members, determine the fundamental policies which shall guide and direct the Superintendent's action.

The theory which lies back of these resolutions is one which is undoubtedly open to debate, and it behooves school people

to make themselves acquainted very promptly with the fiscal problems that are involved in this debate. If school authorities are made independent in their control of school finances, there will have to be some device for co-ordinating the taxes levied for school purposes with those which are levied for other purposes. There must inevitably, then, be developed some form of political responsibility for school expenditures, and it is not easy to see how in a city like New York a board of education can assume this political responsibility without a much higher degree of general public education on matters of municipal finance than can be assumed at the present time. On the other hand, it is equally true, as pointed out by the Public Education Association, that the schools will suffer if there is not a closer relation between the authorities that distribute school funds and those which determine the amount available for school purposes.

There can be no doubt, as has been indicated in earlier comments in the *School Review*, that this problem of school finance is coming to be a more and more urgent problem and one on which school officers ought to become very much more intelligent than they are at the present time.

#### SHORTAGE OF TEACHERS

In order to furnish the public reliable information with respect to teaching conditions throughout the country, a letter was sent out by the Field Secretary of the National Education Association to every county and district superintendent of schools in the United States, with return addressed postal cards inclosed upon which were printed ten questions. The information sought included the actual shortage of teachers at the opening of school in September, the number of teachers below standard who had been accepted in order to fill vacancies, the relation of salary increases to the increased

cost of living, whether or not the number of teachers under 21 years of age has increased, and whether or not promising young men and women are being attracted to teaching as in the past.

The total number of inquiries sent out was 3,465. At the time this article was prepared, September 22, replies had been received from 1,512 superintendents. These replies are signed by the respective superintendents making the reports and are from every state in the Union. Coming from such reliable sources, and from every part of the country, they undoubtedly represent conditions as they actually exist. It is impossible at this time to furnish a complete tabulation of the reports received, but the following important facts are of interest.

The 1,512 superintendents reporting represent 221,296 teaching positions, but none of the large cities are included. They report a total shortage of 12,934 teachers, and a total of 22,138 teachers below standard who have been accepted in order to fill vacancies.

These figures show the shortage of teachers to be 5.84 per cent of the teaching positions represented, and that the number of teachers below standard who have been admitted are almost exactly 10 per cent of the teaching positions. The Bureau of Education estimates that there are 650,000 teaching positions in the public schools of the United States. If these percentages hold good for the entire country, the total shortage of teachers in the United States must be about 38,000, and the number of teachers below standard approximately 65,000. In other words, more than 100,000 teaching positions in the United States are either without teachers, or else supplied with teachers who are admittedly unqualified to teach, measured by the standards of the respective localities in which the schools are situated.

One thousand four hundred and thirty superintendents report that teachers' salaries have not been increased in pro-

portion to the increased cost of living, and 1,267 report that they have found it necessary to lower the standard of qualifications in an effort to supply teachers.

One thousand and fifty-two report that the number of teachers below 21 years of age is increasing. Many report that their rural schools are being taught largely by young girls without professional training. One thousand three hundred and ninety-five declare that promising young men and women are not being attracted to teaching as in the past.

The reports show that conditions are most serious where salaries are lowest. In some states the shortage of teachers is more than 20 per cent. In those states where salaries have been increased most conditions are much more encouraging, the shortage in some cases being as low as 2 per cent.

A complete report on this investigation will be furnished later by the National Education Association.

#### MERIT SYSTEMS AND SALARIES

From all parts of the country come encouraging reports of increases in the salaries of teachers. The National Education Association promises a bulletin, which may be issued before this note comes from the press, dealing with the various schedules that have been adopted in cities in all of the states. In the urgency of making these changes in salaries there has been a tendency in many quarters either to omit all consideration of merit requirements or to regard merit requirements as fully met in the original canvass of a teacher's credentials at the time that he or she was appointed. Where the effort has been made to introduce the principle that salary shall be in proportion to progressive study there has sometimes arisen opposition on the part of teachers, many of them favoring "flat" increases or increases based solely on years of experience.

It is frankly to be recognized that there are grave difficulties in the way of working out merit systems of grading teachers

and adjusting salaries. On the other hand, there is no more urgent problem before administrators today than that of guaranteeing a higher type of public service to communities which are giving increased financial support to schools.

The following report of one method of adjusting a variety of conflicting considerations may serve to make the discussion concrete and may also stimulate other systems to report merit systems recently adopted.

The city of Omaha has recently put into effect new regulations concerning the salary schedule and professional advancement of the entire corps of teachers. For the high-school department, teachers of academic subjects must be graduates of four-year college courses, and must have two years of successful teaching experience. The minimum salary is \$1,100, increasing \$100 a year to a maximum of \$1,700 with provision of additional \$100 super-maximum salary for certain professional credits described below. A sensible limit of five classes per day has been established. Heads of departments, their teaching limited to four classes per day, are entitled to additional salary from \$100 to \$300 depending upon the number of classes they supervise.

Promotional credits attained by approved college or university work are the basis for what is known as "bonus" and as "super-maximum salary." A bonus of \$50 is granted for one year only to any teacher who presents five credits earned after June 1, 1919. The super-maximum salary is granted to "teachers, assistant supervisors, or supervisors who have served at least one year at the regular maximum salary": \$100 for six credits from an accredited school; a second increase of \$100 for a total of 12 credits; and a third and final increase of \$100 for 18 credits; advances in salary in no case to exceed \$100 a year. No credits for which a bonus has been granted are accepted for the super-maximum salary. At least one-third of the work presented by each group of six credits must be in edu-

cation and the remainder in subjects closely allied to the professional duties in Omaha public schools.

In estimating university credits a five-hour course for one semester yields five credits, a one-hour course for one summer session of six weeks yields one and two-thirds credits, enabling any teacher to secure the \$50 bonus for six weeks summer term. Eighteen credits earned at an approved university during a leave of absence are rewarded by the three annual increases of \$100 each.

#### THE NATIONAL COMMITTEE ON MATHEMATICAL REQUIREMENTS

The National Committee on Mathematical Requirements was organized in the late summer of 1916 for the purpose of giving national expression to the movement for reform in the teaching of mathematics which had gained considerable headway in various parts of the country.

The membership of the committee at present is as follows:

##### Representing the colleges:

- A. R. Crathorne, University of Illinois.
- C. N. Moore, University of Cincinnati.
- E. H. Moore, University of Chicago.
- D. E. Smith, Columbia University.
- H. W. Tyler, Massachusetts Institute of Technology.
- J. W. Young, Dartmouth College, *Chairman*.

##### Representing the secondary schools:

Vevia Blair, Horace Mann School, New York. Representing the Association of Teachers of Mathematics in the Middle States and Maryland.

W. F. Downey, English High School, Boston. Representing the Association of Teachers of Mathematics in New England.

J. A. Foberg, Crane Technical High School, Chicago, *Vice Chairman*. Representing the Central Association of Science and Mathematics Teachers.

A. C. Olney, Commissioner of Secondary Education, Sacramento, California.

Raleigh Schorling, The Lincoln School, New York.

P. H. Underwood, Ball High School, Galveston, Texas.

Eula Weeks, Cleveland High School, St. Louis, Missouri.

Last May, the committee was fortunate in securing an appropriation of \$16,000 from the General Education Board, which has made it possible greatly to extend its work. This work is being planned on a large scale for the purpose of organizing a nation-wide discussion of the problems of reorganizing the courses in mathematics in secondary schools and colleges and of improving the teaching of mathematics.

J. W. Young and J. A. Foberg have been selected by the committee to devote their whole time to this work during the coming year. To this end they have been granted leaves of absence by their respective institutions.

The following work is being undertaken immediately:

1. To make a careful study of all that has been said and done, here and abroad, in the way of improving the teaching of mathematics during recent years.
2. To prepare a bibliography of recent literature on the subject.
3. To make a collection of recent textbooks on secondary-school and elementary-college mathematics.
4. To prepare reports on various phases of the problem of reform. Eleven such reports are already under way and others are being projected.
5. To establish contact with existing organizations of teachers with the purpose of organizing a nation-wide study and discussion of the committee's problem. The committee hopes to induce such organizations to adopt this problem as their program for the year. It is ready to furnish material for programs and also to furnish speakers at meetings. The organizations in their turn are to furnish the committee with the results of their discussions and any action taken. In this way it is hoped that the committee can act as a clearing house for ideas and projects and can be of assistance in co-ordinating possible divergent views entertained by different organizations.
6. To promote the formation of new organizations of teachers where such organizations are needed and do not exist at the present time. These organizations may be sectional, covering a considerable area, or they may consist merely of local clubs which can meet at frequent intervals for the discussion and study of the problems of the committee. It is hoped that such clubs can be organized in all the larger cities where they do not already exist.
7. To establish contact directly with individual teachers. The committee feels that this is necessary in addition to its work through organiza-

tions in order to induce such individuals to become active and in order to make the work through organizations effective. Plans for establishing this contact with individuals on a large scale are under consideration, possibly through the publication of a bulletin. These plans, however, are as yet in a tentative stage.

Organizations can be of assistance by sending to the committee a statement of the name of the organization, its officers for the coming year, the time and place of its meetings, and information regarding proposed programs. If any organization has within the last ten years issued any reports on topics connected with the work of the committee, copies of such reports should, if available, be sent both to Mr. Young and Mr. Foberg. If this is impossible, a statement regarding the character and place of publication of any such reports would be welcome.

Individuals can be of assistance—

1. By keeping the committee informed of matters of interest that come to their notice;
2. By suggesting ways in which the committee can be helpful;
3. By sending to the committee in duplicate reprints of any articles they publish on subjects connected with the committee's work;
4. By furthering the work of the committee among their colleagues, organizing discussions, etc.

It is not too much to say that the existence of this committee with its present resources gives the teachers of mathematics, both individually and through their organizations, a unique opportunity to do really constructive work of the highest importance in the direction of reform. They can surely be counted on to make the most of this opportunity.

BUREAU OF EDUCATIONAL RESEARCH, UNIVERSITY OF ILLINOIS

The University of Illinois has organized a Bureau of Educational Research. This bureau is prepared to supply copies of all of the standard tests to any school which wishes to secure

them. It has published a list of the material which it has in stock. This list can be had by writing to the bureau at Urbana, Illinois.

Included in the list of standard tests are a number of high-school tests, especially in the field of mathematics and English composition. Tests in reading which have not heretofore been widely used in high schools are also included in the list. In this way high-school teachers can readily get the material with which to determine the ability of high-school students in the fundamental art which is required for success in all of the lines of work in the high school. There can be no doubt that high schools will increasingly in the future test the results of instruction. They have long been behind the elementary schools in developing this kind of scientific work. Any agency which facilitates the testing of school results will be of service both to the secondary schools and to the schools below.

#### CO-OPERATIVE MEDICAL EDUCATION

The University of Cincinnati was the center at which part-time work in the engineering school originated and from which it spread to other institutions throughout the country. The university has now undertaken to develop a plan of education for students of industrial medicine along lines somewhat analogous to those laid out for engineering education. A statement from the National Safety Council may be quoted in part to describe this plan.

The National Safety Council announces an affiliation with the University of Cincinnati for the purpose of carrying out a program that is unique—almost radical—both to the fields of education and accident prevention and that opens a new and promising avenue for the service of the council.

Briefly, this program includes the establishment of an industrial medicine division at the University of Cincinnati where medical students and graduate physicians will be given special training not only in industrial medicine, but in industrial relations, including sanitation and all the fundamentals of

safety work as well. This school, which is already under way, is unusual in many respects chief among which are the following:

1. The student physicians alternately spend part of their time in school and part in the field among the industries of Cincinnati, Dayton, and other Ohio cities receiving actual experience in the work for which they are being prepared.
2. The enterprize was conceived by, and is being financed by, the industrial leaders of Cincinnati and the vicinity, who have guaranteed a fund of about \$40,000 annually for five years.
3. In addition to the regular courses special courses will be given in such subjects as (1) the medical, industrial, and safety problems arising from the coming of women into industry, (2) public health, and (3) hospital management.
4. The facilities of the school include an industrial research laboratory where physical conditions menacing the health of employees arising in industry will be brought up for investigation and solution. How can dust be eliminated in a certain plant? Is this gas injurious? How can the lighting problem of a peculiarly arranged factory be solved? These and all similar problems arising among the industries represented among the students and sponsors of the Department of Industrial Medicine will be tackled at the industrial research laboratory.

This plan being carried out jointly by the College of Medicine of the University of Cincinnati and the Cincinnati Local Council of the National Safety Council which represents the first attempt in America to train doctors for industrial work, in the opinion of C. W. Price, general manager of the National Safety Council, promises much for other cities.

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#### ACCOUNTING SYSTEM FOR HIGH-SCHOOL ORGANIZATION FUNDS

*High School, Elgin, Illinois.—*

Brings funds of all organizations under one treasurership with one bank account and one set of books kept by commercial department. Advantages: (1) places purely high-school business in the business department; (2) furnishes excellent practical work for upper students in bookkeeping; (3) makes exact status of all funds instantly accessible; (4) centralizes accounting of entire school in a business office; (5) enables high school

to have definite business policy; (6) brings commercial department into closer touch with business of the city; (7) commercial department has real bills to pay, real discounts to make, real bank deposits to make, real checks to draw, a real cash book to balance with bank, real letters to write. Elgin High School has seventeen funds; handled \$19,000 in 1918-19.

L. J. JOLLY

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THE SCHOOL PAPER

*Main Central Institute, Pittsfield, Maine.—*

One of the teachers has a contract with manager of local weekly paper for one full sheet for 36 weeks of school session. Manager pays teacher \$0.75 for every subscription, and allows a small commission for advertisements on the school page. Plan netted \$80 profits last year. Senior English class each month elects editors for seven departments; one hundred and sixty students appear on the board each year. Alumni editor serves throughout the year. Most of material written and revised as assignments in various English classes. Most important items read before the Senior English class and finally prepared for press by the Board of Editors.

S. R. OLDHAM

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NUMERICAL PROBLEM IN PHYSICS

*Schenley High School, Pittsburgh, Pennsylvania.—*

Tests mimeographed from an article in the *School Review*,<sup>1</sup> were given to students without warning more than four months after study of mechanics had closed. Time allowed was exactly forty minutes. No pupil solved 2, 7, or 14; they had not been instructed in the necessary theory. Many might have solved 14 had it been studied in metric system, and many reached an answer for 7 that would have been correct had there

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<sup>1</sup> D. P. RANDALL, J. C. CHAPMAN, and C. W. SUTTON, "The Place of the Numerical Problem in High-School Physics," *School Review*, XXVI (1918), 39-43.

been no pressure on the surface of the water. The total number of pupils taking the test was 28—26 boys and 2 girls. The median age was 17 years.

QUESTION	NUMBER		PERCENTAGE	
	Attempts	Right	Attempts	Right
1.....	24	8	86	29
2.....	27	.....	97	.....
3.....	25	15	89	53
4.....	27	14	97	50
5.....	22	9	79	32
6.....	16	8	57	29
7.....	16	.....	57	.....
8.....	21	15	75	53
9.....	21	13	75	46
10.....	27	27	97	100
11.....	23	11	82	39
12.....	14	4	50	14
13.....	14	2	50	7
14.....	13	.....	46	.....
Mean...	21	9	75	32

It appears that the authors of the *School Review* article are correct in their conclusion that the numerical problem has not been sufficiently stressed in that city; but a score of 15 per cent does not represent real ability of the pupils tested. The time allowed was insufficient, especially if test was given long after the subject has been completed. Even pupils of exceptional ability require time for recalling principles, especially if the principles involved are stated in terms unlike the ones of original study.

P. M. DYSART